

W PAGE: 1

#7 SK  
8/17/00  
OIPE  
PATENT APPLICATION US/09/504,393

0210  
1643 1600  
DATE: 03/08/2000  
TIME: 16:12:30

Input Set: I504393.RAW

This Raw Listing contains the General Information  
Section and up to first 5 pages.

1 <110> APPLICANT: BACHMANN, Heinrich  
2 BRUGGER, Roland  
3 FRIEDELEIN, Arno M  
4 WIRTZ, Gabriele M  
5 WOGGON, Wolf-Dietrich  
6 WYSS, Adrian  
7 WYSS, Markus  
8 <120> TITLE OF INVENTION: BETA,BETA-CAROTENE 15,15'-DIOXYGENASES, NUCLEIC ACID  
9 SEQUENCES CODING THEREFOR AND THEIR USE  
10 <130> FILE REFERENCE: B,B-CAROTENE 15,15'-DIOXYGENASES, ...  
11 <140> CURRENT APPLICATION NUMBER: US/09/504,393  
12 <141> CURRENT FILING DATE: 2000-02-15  
13 <150> EARLIER APPLICATION NUMBER: 103382.0  
14 <151> EARLIER FILING DATE: 1999-02-22  
15 <160> NUMBER OF SEQ ID NOS: 10  
16 <170> SOFTWARE: PatentIn Ver. 2.1  
17 <210> SEQ ID NO 1  
18 <211> LENGTH: 526  
19 <212> TYPE: PRT  
20 <213> ORGANISM: CHICKEN  
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25 20 25 30  
26 Leu Arg Asn Gly Pro Gly Met His Thr Ile Gly Asp Thr Lys Tyr Asn  
27 35 40 45  
28 His Trp Phe Asp Gly Leu Ala Leu Leu His Ser Phe Thr Phe Lys Asn  
29 50 55 60  
30 Gly Glu Val Tyr Tyr Arg Ser Lys Tyr Leu Arg Ser Asp Thr Tyr Asn  
31 65 70 75 80  
32 Cys Asn Ile Glu Ala Asn Arg Ile Val Val Ser Glu Phe Gly Thr Met  
33 85 90 95  
34 Ala Tyr Pro Asp Pro Cys Lys Asn Ile Phe Ala Lys Ala Phe Ser Tyr  
35 100 105 110  
36 Leu Ser His Thr Ile Pro Glu Phe Thr Asp Asn Cys Leu Ile Asn Ile  
37 115 120 125  
38 Met Lys Thr Gly Asp Asp Tyr Tyr Ala Thr Ser Glu Thr Asn Phe Ile  
39 130 135 140  
40 Arg Lys Ile Asp Pro Gln Thr Leu Glu Thr Leu Asp Lys Val Asp Tyr  
41 145 150 155 160  
42 Ser Lys Tyr Val Ala Val Asn Leu Ala Thr Ser His Pro His Tyr Asp  
43 165 170 175  
44 Ser Ala Gly Asn Ile Leu Asn Met Gly Thr Ser Ile Val Asp Lys Gly

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RAW SEQUENCE LISTING  
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Input Set: I504393.RAW

45 180 185 190  
 46 Arg Thr Lys Tyr Val Leu Phe Lys Ile Pro Ser Ser Val Pro Glu Lys  
 47 195 200 205  
 48 Glu Lys Lys Lys Ser Cys Phe Lys His Leu Glu Val Val Cys Ser Ile  
 49 210 215 220  
 50 Pro Ser Arg Ser Leu Leu Gln Pro Ser Tyr Tyr His Ser Phe Gly Ile  
 51 225 230 235 240  
 52 Thr Glu Asn Tyr Ile Val Phe Ile Glu Gln Pro Phe Lys Leu Asp Ile  
 53 245 250 255  
 54 Val Lys Leu Ala Thr Ala Tyr Ile Arg Gly Val Asn Trp Ala Ser Cys  
 55 260 265 270  
 56 Leu Ser Phe His Lys Glu Asp Lys Thr Trp Phe His Phe Val Asp Arg  
 57 275 280 285  
 58 Lys Thr Lys Lys Glu Val Ser Thr Lys Phe Tyr Thr Asp Ala Leu Val  
 59 290 295 300  
 60 Leu Tyr His His Ile Asn Ala Tyr Glu Glu Asp Gly His Val Val Phe  
 61 305 310 315 320  
 62 Asp Ile Val Ala Tyr Arg Asp Asn Ser Leu Tyr Asp Met Phe Tyr Leu  
 63 325 330 335  
 64 Lys Lys Leu Asp Lys Asp Phe Glu Val Asn Asn Lys Leu Thr Ser Ile  
 65 340 345 350  
 66 Pro Thr Cys Lys Arg Phe Val Val Pro Leu Gln Tyr Asp Lys Asp Ala  
 67 355 360 365  
 68 Glu Val Gly Ser Asn Leu Val Lys Leu Pro Thr Ser Ala Thr Ala Val  
 69 370 375 380  
 70 Lys Glu Lys Asp Gly Ser Ile Tyr Cys Gln Pro Glu Ile Leu Cys Glu  
 71 385 390 395 400  
 72 Gly Ile Glu Leu Pro Arg Val Asn Tyr Asp Tyr Asn Gly Lys Lys Tyr  
 73 405 410 415  
 74 Lys Tyr Val Tyr Ala Thr Glu Val Gln Trp Ser Pro Val Pro Thr Lys  
 75 420 425 430  
 76 Ile Ala Lys Leu Asn Val Gln Thr Lys Glu Val Leu His Trp Gly Glu  
 77 435 440 445  
 78 Asp His Cys Trp Pro Ser Glu Pro Ile Phe Val Pro Ser Pro Asp Ala  
 79 450 455 460  
 80 Arg Glu Glu Asp Glu Gly Val Val Leu Thr Cys Val Val Val Ser Glu  
 81 465 470 475 480  
 82 Pro Asn Lys Ala Pro Phe Leu Leu Ile Leu Asp Ala Lys Thr Phe Lys  
 83 485 490 495  
 84 Glu Leu Gly Arg Ala Thr Val Asn Val Glu Met His Leu Asp Leu His  
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 97 ccaggatgc acacaatagg ggacactaaa tacaaccact gtttgcattt cttggctctg 300  
 98 ctgcacagct tcacgtttaa aaatggtaa gtttactaca gaagtaagta cctccgaat 360  
 99 gacacataca actgcaatata agaagcaaac cgaatcgtgg tgtctgagtt tggaaaccatg 420  
 100 gcttatccgg atccatgcaaa aacatattt gccaaggcat tctcatactt atctcacacc 480  
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 102 gctaccagt agactaactt catcagaaaa attgatccac agactctggc gacactagat 600  
 103 aaggtagact acagcaataa tggtagtgc aacttggcaaa cttctcaccc acactatgac 660  
 104 agtgctggaa atattctcaa catgggtact tcaattgtt ataaaggag aacaaaatata 720  
 105 gttctctta agatcccttc ctctgtacca gaaaaagaaa agaagaaatc ttgttttaaa 780  
 106 cacctggaa tagttagtgc catcccttc cgctccctgc tccaaaccaag ctactaccac 840  
 107 agctttggaa tcacagaaaa ttatattgtt ttcatacgac agccatttaa actggatatt 900  
 108 gtcaaactgg caactgccta catccggatgt gtaactggg ctccctgcct ttcctttcat 960  
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 113 cgctttgtt tgcccttgca gtatgacaag gatgcagaag tagttctaa tttagtcaaa 1260  
 114 cttccaaactt ccgcaactgc tgtaaaaaaaa aaagatggca gcatctattt tcaacctgaa 1320  
 115 atattatgtt aaggataga actgcctcgat gtcactatg actacaatgg caaaaaatac 1380  
 116 aagtatgtt atgcaacaga agtccactgg agcccaacttc ctacaaagat tgcaaaaactg 1440  
 117 aatgtccaaa caaaggaagt actgcactgg ggagaagacc actgctggcc ctcagagccc 1500  
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 121 ccacagaatg atttggggcc tgagacggaa taaaacgcta ttgatccgac tacacaaact 1740  
 122 gagacaactt tctactgaac atgagttat atccctttt ccattcaaga acaaccatata 1800  
 123 aacgacacaa aatgactatg tataatctct taaataatag atataatctt ttaaggcac 1860  
 124 agcgatgagt ttactacag gtaacgatata gcaacaactgg catataacta ttccaaaaga 1920  
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 128 gatcgttca agattgcacgc ttgtatgcata agtttctcc agccagaaaa cctcattttt 2160  
 129 aaccatctgc tactggtaat tcataccat gcatatttctt ggtgctcgat ttacactata 2220  
 130 accaaagttt agtattacat tcaggtgcata caactttctt atttacaacc gaaacaaaaca 2280  
 131 agcaaaacagc acttgctttt ctaataaccc catgggtgtat ttttccctttt tatgtatgaca 2340  
 132 aaaccaagta catatggttt tatgtatgcata tcaattatac ttcaatgcata ttccatccata 2400  
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 134 gtgtatgag atgactatgt tgcataatggaa tgaacaggaa tgcataatgtt attgtatgtt 2520  
 135 ttaattgtt tactaataact atgcataatgcata atgagagacaa tgcataatgtt gagaactca 2580  
 136 gatatacatt caacaatttc tgcatttttgcata aatgcattt gcatatttctt ggtgctcgat 2640  
 137 aatgaggag aaaaactgggtt atccatccat ccaactatgtt taggtgttca cttggctctg 2700  
 138 atgtgacacc acgctgtttt ggtatctctc actttcatacat acctgttctc atggttctg 2760  
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 141 cagagcagca atagaaccaa caccatccac agtttgcata tgctctgttca tgactccctt 2940  
 142 tgctgtctt atggtttgcata tgcataatggaa atacactgccc taattctataat gttaaaaaagt 3000  
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 144 ccataaaaatg gaaataaaaca cttccataat aaaaaaaaaa aaaaaaaaaa a 3111

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RAW SEQUENCE LISTING  
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147 <212> TYPE: PRT  
148 <213> ORGANISM: CHICKEN  
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153 <211> LENGTH: 506  
154 <212> TYPE: PRT  
155 <213> ORGANISM: CHICKEN  
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160 20 25 30  
161 Ile Gly Asp Thr Lys Tyr Asn His Trp Phe Asp Gly Leu Ala Leu Leu  
162 35 40 45  
163 His Ser Phe Thr Phe Lys Asn Gly Glu Val Tyr Tyr Arg Ser Lys Tyr  
164 50 55 60  
165 Leu Arg Ser Asp Thr Tyr Asn Cys Asn Ile Glu Ala Asn Arg Ile Val  
166 65 70 75 80  
167 Val Ser Glu Phe Gly Thr Met Ala Tyr Pro Asp Pro Cys Lys Asn Ile  
168 85 90 95  
169 Phe Ala Lys Ala Phe Ser Tyr Leu Ser His Thr Ile Pro Glu Phe Thr  
170 100 105 110  
171 Asp Asn Cys Leu Ile Asn Ile Met Lys Thr Gly Asp Asp Tyr Tyr Ala  
172 115 120 125  
173 Thr Ser Glu Thr Asn Phe Ile Arg Lys Ile Asp Pro Gln Thr Leu Glu  
174 130 135 140  
175 Thr Leu Asp Lys Val Asp Tyr Ser Lys Tyr Val Ala Val Asn Leu Ala  
176 145 150 155 160  
177 Thr Ser His Pro His Tyr Asp Ser Ala Gly Asn Ile Leu Asn Met Gly  
178 165 170 175  
179 Thr Ser Ile Val Asp Lys Gly Arg Thr Lys Tyr Val Leu Phe Lys Ile  
180 180 185 190  
181 Pro Ser Ser Val Pro Glu Lys Glu Lys Lys Ser Cys Phe Lys His  
182 195 200 205  
183 Leu Glu Val Val Cys Ser Ile Pro Ser Arg Ser Leu Leu Gln Pro Ser  
184 210 215 220  
185 Tyr Tyr His Ser Phe Gly Ile Thr Glu Asn Tyr Ile Val Phe Ile Glu  
186 225 230 235 240  
187 Gln Pro Phe Lys Leu Asp Ile Val Lys Leu Ala Thr Ala Tyr Ile Arg  
188 245 250 255  
189 Gly Val Asn Trp Ala Ser Cys Leu Ser Phe His Lys Glu Asp Lys Thr  
190 260 265 270  
191 Trp Phe His Phe Val Asp Arg Lys Thr Lys Lys Glu Val Ser Thr Lys  
192 275 280 285  
193 Phe Tyr Thr Asp Ala Leu Val Leu Tyr His His Ile Asn Ala Tyr Glu  
194 290 295 300

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RAW SEQUENCE LISTING  
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Input Set: I504393.RAW

195 Glu Asp Gly His Val Val Phe Asp Ile Val Ala Tyr Arg Asp Asn Ser  
 196 305 310 315 320  
 197 Leu Tyr Asp Met Phe Tyr Leu Lys Lys Leu Asp Lys Asp Phe Glu Val  
 198 325 330 335  
 199 Asn Asn Lys Leu Thr Ser Ile Pro Thr Cys Lys Arg Phe Val Val Pro  
 200 340 345 350  
 201 Leu Gln Tyr Asp Lys Asp Ala Glu Val Gly Ser Asn Leu Val Lys Leu  
 202 355 360 365  
 203 Pro Thr Ser Ala Thr Ala Val Lys Glu Lys Asp Gly Ser Ile Tyr Cys  
 204 370 375 380  
 205 Gln Pro Glu Ile Leu Cys Glu Gly Ile Glu Leu Pro Arg Val Asn Tyr  
 206 385 390 395 400  
 207 Asp Tyr Asn Gly Lys Lys Tyr Lys Tyr Val Tyr Ala Thr Glu Val Gln  
 208 405 410 415  
 209 Trp Ser Pro Val Pro Thr Lys Ile Ala Lys Leu Asn Val Gln Thr Lys  
 210 420 425 430  
 211 Glu Val Leu His Trp Gly Glu Asp His Cys Trp Pro Ser Glu Pro Ile  
 212 435 440 445  
 213 Phe Val Pro Ser Pro Asp Ala Arg Glu Glu Asp Glu Gly Val Val Leu  
 214 450 455 460  
 215 Thr Cys Val Val Val Ser Glu Pro Asn Lys Ala Pro Phe Leu Leu Ile  
 216 465 470 475 480  
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 229 20 25 30  
 230 Phe Glu Val Gly Ser Glu Pro Phe Tyr His Leu Phe Asp Gly Gln Ala  
 231 35 40 45  
 232 Leu Leu His Lys Phe Asp Phe Lys Glu Gly His Val Thr Tyr His Arg  
 233 50 55 60  
 234 Arg Phe Ile Arg Thr Asp Ala Tyr Val Arg Ala Met Thr Glu Lys Arg  
 235 65 70 75 80  
 236 Ile Val Ile Thr Glu Phe Gly Phe Thr Thr Cys Ala Phe Pro Asp Pro  
 237 85 90 95  
 238 Cys Lys Asn Ile Phe Ser Arg Phe Phe Ser Tyr Phe Arg Gly Val Glu  
 239 100 105 110  
 240 Val Thr Asp Asn Ala Leu Val Asn Val Tyr Pro Val Gly Glu Asp Tyr  
 241 115 120 125  
 242 Tyr Ala Cys Thr Glu Thr Asn Phe Ile Thr Lys Ile Asn Pro Glu Thr  
 243 130 135 140  
 Leu Glu Thr Ile Phe Thr Lys Gln Val Asp Leu Cys Asn Tyr Val Ser

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to insure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa. ✓

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**VERIFICATION SUMMARY**  
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Line ? Error/Warning

Original Text

320 W "N" or "Xaa" used: Feature required

aacaargarg ascayccnga

336 W "N" or "Xaa" used: Feature required

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